

**REMARKS**

These remarks are in response to the Office Action of July 25, 2006 and the Notice of Non-Compliant Amendment under 37 C.F.R. § 1.121 dated, March 28, 2006.

Claims 14 through 39 are currently pending in the application.

Claims 1 through 11 have been allowed.

Claims 12 and 13 and 40 through 44 have been canceled.

Claims 20 through 24 and 33 through 37 are withdrawn from consideration as being drawn to a non-elected invention.

Claims 14 through 19, 25 through 32, 38 and 39 stand rejected. Applicant has amended no claims, and respectfully requests reconsideration of the application as amended herein.

**Supplemental Information Disclosure Statement**

Please note that a Supplemental Information Disclosure Statement was filed herein on July 7, 2006, and that no copy of the PTO/SB/08A was returned with the outstanding Office Action. Applicants respectfully request that the information cited on the PTO/SB/08A be made of record herein.

**Objection to Drawings**

As previously set forth in the amendment having a filing date of April 28, 2006, The Applicant respectfully submits that the drawing changes which are set forth in newly added drawing Fig. 1A are solely drawing notes which bring additional clarity to the application and as written notes the changes are substantially self explanatory to illustrate the claimed invention of claim 14 and 27 having the negative limitation "no narrow common electrical leads for connection to semiconductor die and paddle support bars/no electrical leads for connection to semiconductor die". However by way of further explanation, FIG. 1 and FIG 1A are separate embodiments of the present invention. The amendments to FIG. 1 include a note showing the die paddle support bars may be used as leads in certain specific instances and a second note describing that there are no electrical leads in the voids defined (or framed) by the lead frames

24, 28, side rails 14 and the die paddle 20. The new FIG. 1A includes the numbered leads which correspond with the numbered leads of FIG. 1 however, the notes at least partially define the difference between the two embodiments including, paddle support bars which are not used as leads under any circumstance and again the voids are declared to have no leads. Applicant asserts that previously drawing FIG. 1 was amended to clearly illustrate the claim limitation calling for “a metallic paddle having no electrical leads for connection to a semiconductor die secured to the second surface of the semiconductor die, the metallic paddle being attached to at least one side rail by at least a plurality of paddle support bars that include one of being used as a lead and not being used as a lead and being attached to a plurality of cross members by the support bars of a paddle frame”. Such an element of the invention being set forth in the specification on page 6, lines 7 through 11 and in drawing FIGS. 1 through 3. The specification states on page 6, lines 7 through 11, that “Generally, no leads for electrical conduction are provided, although one or more of the paddle support bars 24, 28 may be used as leads in certain specific instances. No narrow ‘leads’ common in lead frames are required in the paddle frame 12, resulting in greater ease of manufacture and increased reliability.” As previously stated, Applicant additionally asserts that, in drawing FIGS. 1 through 5, no narrow leads are illustrated but, rather only paddle support bars 24, 28 are illustrated which may or may not be used as electrical leads separate and distinct from any narrow common electrical leads. Claims 14 and 27 include language of the invention directed to a different embodiment of the inventions calling for “the paddle support bars not used for electrical leads for the semiconductor die.” Applicant wishing to avoid any confusion in drawing FIG. 1 of the application by trying to illustrate two different embodiments of the invention, particularly add the language of claims 14 and 27 calling for “the paddle support bars not used for electrical leads for the semiconductor die” thereto when the amended drawing FIG.1 currently states that “paddle support bars which may be used as leads in certain specific circumstances”, proposes adding drawing FIG.1A to clearly illustrate such elements of the claimed inventions. However, Applicant will amend drawing FIG.1 to include such language to illustrate the claimed inventions of claims 14 and 27 if such is desired to illustrate two different embodiments of the invention.

In the Office Action it is stated that “. . . the drawings do not show the claims 14 embodiment comprising a paddle frame having no narrow common electrical leads for connection to a semiconductor device and paddle support bars, and . . . a paddle frame having no electrical leads for connection to a semiconductor device and paddle support bars.” Applicant respectfully disagrees as drawing Fig. 1 and the newly added drawing Fig. 1A clearly illustrates such claim language to comply with the provisions of 37 CFR § 1.83(a). Applicant asserts that drawing Fig. 1A complies with the provisions of 37 CFR § 1.83 (a) as the claim language is contained on the drawing figure. While the claim language may be asserted as not complying with the provisions of 35 U.S.C. § 101 or 35 U.S.C. § 112, Applicant asserts that by inclusion of such claim language in such drawing figures, Applicants comply with the provisions of 37 CFR § 1.83(a).

### **35 U.S.C. § 101 Non-statutory Rejection**

Claims 14 through 19, 25 through 32, 38 and 39 are rejected under 35 U.S.C. § 101 as being non-statutory because they improperly embrace or overlap two different statutory classes of invention. Applicants respectfully traverse this rejection, as hereinafter set forth.

In the Office Action, it is asserted that claims 14-19, 25-32, 38 and 39 improperly embrace or overlap two different statutory classes of invention, namely, manufacture and process of using the manufacture, which statutory classes are set forth only in the alternative in 35 U.S.C. § 101. See MPEP 2173.05(p)II. Specifically, claims 14-19, 25-32, 38, and 39 are directed to a manufacture, but the claims 14 and 27 limitation, “the paddle support bars are not used for electrical leads for the semiconductor die” and “a plurality of paddle support bars that include one of being used as a lead and not being used as a lead” respectively, are directed to a process of using the manufacture.

Applicant notes that MPEP § 2173.059(p) II. states that a single claim which claims both an apparatus and the method steps of using the apparatus is indefinite under 35 U.S.C. § 112, second paragraph. *Ex parte Lyell*, 17 USPQ2d 1548, (Bd. Pat. App. & Inter. (1990), a claim directed to an automatic transmission workstand and the method steps of using it was held to be ambiguous and properly rejected under 35 U.S.C. § 112, second paragraph. Such claims should

also be rejected under 35 U.S.C. § 101 based on the theory that the claim is directed to neither a “process” nor a “machine,” but rather embraces or overlaps two different statutory classes of invention in the alternative only. *Id.* At 1551. Applicant attaches a copy of *Ex parte Lyell* as Attachment A to this amendment for reference by the Examiner.

Applicant asserts that a careful reading of the claim 2. reproduced in *Ex parte Lyell* clearly illustrates that the claim is directed to “An automatic transmission tool in the form of a workstand and method for using same comprising: a support means, . . . and further comprising the steps of 1. positioning the output end of an automatic transmission onto said upright . . . .” Applicant notes that such a claim was found to be improper under 35 U.S.C. § 101 and 35 U.S.C. § 112, second paragraph.

Applicant asserts that independent claim 14 is directed to:

14. A semiconductor device assembly of a plurality of semiconductor device assemblies, comprising:  
a semiconductor die having an active surface having at least one bond pad thereon and an opposing second surface;  
at least one projection secured to the at least one bond pad on the active surface of said semiconductor die configured for flip-chip connection to a substrate, the at least one projection including one of at least one solder ball and at least one solder bump; and  
a metal paddle from a paddle frame having no narrow common electrical leads for connection to the semiconductor die of a plurality of paddle frames connected by a pair of rails having a plurality of cross members therebetween, said second surface of the semiconductor die being attached to the paddle, the metal paddle attached to at least one side rail by at least a plurality of paddle support bars and being attached to a plurality of cross members by the support bars, the paddle support bars not used for electrical leads for the semiconductor die.

Applicant asserts that independent claim 27 is directed to:

27. A semiconductor device assembly of a plurality of semiconductor device assemblies, comprising:

a semiconductor die having an active surface having a plurality of bond pads thereon and an opposing second surface;

a plurality of projections connected to the plurality of bond pads for direct connection to a host circuit board, the plurality of projections including one of a plurality of solder balls and a plurality of solder bumps; and

a metallic paddle having no electrical leads for connection to a semiconductor die secured to the second surface of the semiconductor die, the metallic paddle being attached to at least one side rail by at least a plurality of paddle support bars that include one of being used as a lead and not being used as a lead and being attached to a plurality of cross members by the support bars of a paddle frame.

Applicant asserts that nowhere in either independent claim 14 or independent claim 27 is there any claim language setting forth both an apparatus and the method steps of using the apparatus such as in claim 2. . . reproduced in *Ex parte Lyell* directed to and having the form of “An automatic transmission tool in the form of a workstand and method for using same comprising: a support means, . . . and further comprising the steps of 1. positioning the output end of an automatic transmission onto said upright . . . .” Applicant asserts that the both independent claim 14 and independent claim 27 are directed to the statutory class of a manufacture under 35 U.S.C. § 101. Applicant further asserts that nowhere in either independent claim 14 or independent claim 27 does either claim recite “and further comprising the steps of . . . .” setting forth a process of using the manufacture under 35 U.S.C. § 101 to fall within the scope of the decision regarding claim language construed under the provisions of 35 U.S.C. 101 and 35 U.S.C. § 112, second paragraph as set forth in *Ex parte Lyell*.

Applicant asserts that the claim language “the paddle support bars are not used for electrical leads for the semiconductor die” and “a plurality of paddle support bars that include one of being used as a lead and not being used as a lead” respectively, are not directed to a process of using the manufacture, but rather, functional limitations and/or negative limitations as permitted by MPEP § 2173.01. Applicant asserts that such language clearly is defined in the specification, page 6, lines 5 through 11. Applicant further asserts that MPEP § 2173.01 clearly

states that Applicant can define in the claims what they regard as their invention essentially in whatever terms they choose so long as any special meaning assigned to a term is clearly set forth in the specification. See MPEP § 2111.01. Applicant may use functional language, alternative expressions, negative limitations, or any style of expression or format of claim which makes clear the boundaries of the subject matter for which protection is sought. *In re Swinehart*, 439 F.2d 210, 160 USPQ 226 (CCPA 1971), a claim may not be rejected solely because of the type of language used to define the subject matter for which patent protection is sought.

Applicant asserts that independent claim 14 and independent claim 27 clearly contain either functional language and/or negative limitations which are clearly set forth in the specification, page 6, lines 5 through 11 and are permissible under 35 U.S.C. § 101, 35 U.S.C. § 112, second paragraph, and MPEP § 2173.01. Applicant asserts that 14 through 19, 25 through 32, 38 and 39 are allowable.

**Claims 14 through 19, 25 through 32, 38 and 39 Rejection under 35 U.S.C. § 112, Second Paragraph**

Applicant notes that MPEP § 2173.059(p) II. states that a single claim which claims both an apparatus and the method steps of using the apparatus is indefinite under 35 U.S.C. § 112, second paragraph. *Ex parte Lyell*, 17 USPQ2d 1548, (Bd. Pat. App. & Inter. (1990)), a claim directed to an automatic transmission workstand and the method steps of using it was held to be ambiguous and properly rejected under 35 U.S.C. § 112, second paragraph.

Applicant asserts that a careful reading of the claim 2. reproduced in *Ex parte Lyell* clearly illustrates that the claim is directed to “An automatic transmission tool in the form of a workstand and method for using same comprising: a support means, . . . and further comprising the steps of 1. positioning the output end of an automatic transmission onto said upright . . . .” Applicant notes that such a claim was found to be improper under 35 U.S.C. § 101 and 35 U.S.C. § 112, second paragraph.

Applicant asserts that independent claim 14 is directed to:

14. A semiconductor device assembly of a plurality of semiconductor device

assemblies, comprising:

a semiconductor die having an active surface having at least one bond pad thereon and an opposing second surface;

at least one projection secured to the at least one bond pad on the active surface of said semiconductor die configured for flip-chip connection to a substrate, the at least one projection including one of at least one solder ball and at least one solder bump; and

a metal paddle from a paddle frame having no narrow common electrical leads for connection to the semiconductor die of a plurality of paddle frames connected by a pair of rails having a plurality of cross members therebetween, said second surface of the semiconductor die being attached to the paddle, the metal paddle attached to at least one side rail by at least a plurality of paddle support bars and being attached to a plurality of cross members by the support bars, the paddle support bars not used for electrical leads for the semiconductor die.

Applicant asserts that independent claim 27 is directed to:

27. A semiconductor device assembly of a plurality of semiconductor device assemblies, comprising:

a semiconductor die having an active surface having a plurality of bond pads thereon and an opposing second surface;

a plurality of projections connected to the plurality of bond pads for direct connection to a host circuit board, the plurality of projections including one of a plurality of solder balls and a plurality of solder bumps; and

a metallic paddle having no electrical leads for connection to a semiconductor die secured to the second surface of the semiconductor die, the metallic paddle being attached to at least one side rail by at least a plurality of paddle support bars that include one of being used as a lead and not being used as a lead and being attached to a plurality of cross members by the support bars of a paddle frame.

Applicant asserts that nowhere in either independent claim 14 or independent claim 27 is there any claim language setting forth both an apparatus and the method steps of using the apparatus such as in claim 2. . reproduced in *Ex parte Lyell* directed to and having the form of “An automatic transmission tool in the form of a workstand and method for using same comprising: a support means, . . . and further comprising the steps of 1. positioning the output end of an automatic transmission onto said upright . . . .” Applicant asserts that the both independent claim 14 and independent claim 27 are directed to the statutory class of a manufacture under 35 U.S.C. § 101. Applicant further asserts that nowhere in either independent claim 14 or independent claim 27 does either claim recite “and further comprising the steps of . . . .” setting forth a process of using the manufacture under 35 U.S.C. § 101 to fall within the scope of the decision regarding claim language construed under the provisions of 35 U.S.C. 101 and 35 U.S.C. § 112, second paragraph as set forth in *Ex parte Lyell*.

Applicant asserts that the claim language “the paddle support bars are not used for electrical leads for the semiconductor die” and “a plurality of paddle support bars that include one of being used as a lead and not being used as a lead” respectively, are not directed to a process of using the manufacture, but rather, functional limitations and/or negative limitations as permitted by MPEP § 2173.01. Applicant asserts that such language clearly is defined in the specification, page 6, lines 5 through 11. Applicant further asserts that MPEP § 2173.01 clearly states that Applicant can define in the claims what they regard as their invention essentially in whatever terms they choose so long as any special meaning assigned to a term is clearly set forth in the specification. See MPEP § 2111.01. Applicant may use functional language, alternative expressions, negative limitations, or any style of expression or format of claim which makes clear the boundaries of the subject matter for which protection is sought. *In re Swinehart*, 439 F.2d 210, 160 USPQ 226 (CCPA 1971), a claim may not be rejected solely because of the type of language used to define the subject matter for which patent protection is sought.



Applicant asserts that independent claim 14 and independent claim 27 clearly contain either functional language and/or negative limitations which are clearly set forth in the specification, page 6, lines 5 through 11 and are permissible under 35 U.S.C. § 101, 35 U.S.C. § 112, second paragraph, and MPEP § 2173.01. Applicant asserts that 14 through 19, 25 through 32, 38 and 39 are allowable.

### **35 U.S.C. § 112 Claim Rejections**

Claims 14 through 19, 25 through 32, 38 and 39 are rejected under 35 U.S.C. § 112, first paragraph, failing to comply with the written description requirement and as failing to comply with the enablement requirement.

In the Office Action it is asserted that in the specification, page 6, lines 8-9, applicant discloses that the paddle support bars 24, 28 are electrical leads for connection to a semiconductor device because they are capable of being used for the intended use as electrical leads for connection to a semiconductor die. It is further asserted that one skilled in the art would be unable to make a paddle frame having no common electrical leads and paddle support bars, because . . . paddle support bars are inherently narrow common electrical leads.

Applicant notes that the specification, page 6, lines 7-11 states that “Generally, no leads for electrical conduction are provided, although one or more of the paddle support bars 24, 28 may be used as leads in certain specific instances. No narrow ‘leads’ common in lead frames are required in the paddle frame 12, resulting in greater ease of manufacture and increased reliability.” Applicant asserts that such disclosure clearly sets forth to one of ordinary skill in the art that they paddle support bars are not inherently common electrical leads regarding the invention. Applicant asserts that the specification contains not description of the invention wherein the paddle support bars are described as narrow common electrical leads. As previously stated, Applicant additionally asserts that, in drawing FIGS. 1 through 5, no narrow leads are illustrated but, rather only paddle support bars 24, 28 are illustrated which may or may not be used as electrical leads separate and distinct from any narrow common electrical leads. Claims 14 and 27 include language of the invention directed to a different embodiment of the inventions calling for “the paddle support bars not used for electrical leads for the semiconductor die.”

Applicant wishing to avoid any confusion in drawing FIG. 1 of the application by trying to illustrate two different embodiments of the invention, particularly add the language of claims 14 and 27 calling for “the paddle support bars not used for electrical leads for the semiconductor die” thereto when the amended drawing FIG.1 currently states that “paddle support bars which may be used as leads in certain specific circumstances”, proposes adding drawing FIG.1A to clearly illustrate such elements of the claimed inventions.

Applicant has amended the claimed invention as suggested by the Examiner for the presently claimed invention to particularly point out and distinctly claim the subject matter of the invention to comply with the provisions of 35 U.S.C. § 112, first paragraph, wherein new drawing Fig. 1A illustrates the elements of the inventions set forth in independent claims 14 and 27. Therefore, claims 14 through 19, 25 through 32, 38 and 39 are allowable under the provisions of 35 U.S.C. § 112, first paragraph.

Further, Applicant asserts that the inventions of independent claims 14 and 27 comply with the provisions of 35 U.S.C. § 112, first paragraph, as complying with the written description requirement and complying with the enablement requirement. Applicant asserts that the specification, page 6, lines 7-11 states that “Generally, no leads for electrical conduction are provided, although one or more of the paddle support bars 24, 28 may be used as leads in certain specific instances. No narrow ‘leads’ common in lead frames are required in the paddle frame 12, resulting in greater ease of manufacture and increased reliability.” Applicant asserts that such disclosure clearly sets forth to one of ordinary skill in the art that they paddle support bars are not inherently common electrical leads regarding the invention. Applicant asserts that the specification contains no description of the invention wherein the paddle support bars are described as narrow common electrical leads. As previously stated, Applicant additionally asserts that, in drawing FIGS. 1 through 5, no narrow leads are illustrated but, rather only paddle support bars 24, 28 are illustrated which may or may not be used as electrical leads separate and distinct from any narrow common electrical leads. Further, Applicant asserts that the specification, page 6, lines 28-29, clearly states that “To singulate each semiconductor device 40 assembly, the paddle support bars 24, 28 are excised close to the paddles 22 with excisions 50 (see drawing FIG. 3).” Applicant asserts that one of ordinary skill in the art would clearly

understand the claim limitations calling for “the paddle support bars not used for electrical leads for the semiconductor die” and “at least a plurality of paddle support bars that include one of being used as a lead and not being used as a lead and being attached to a plurality of cross members by the support bars of a paddle frame” as there are no electrical leads illustrated in drawing Fig. 1 used in conjunction with paddle support bars, which may be used as leads in certain specific instances, whereas proposed drawing Fig. 1A illustrates the instance where paddle support bars are not used as leads and no narrow common electrical leads for connection to semiconductor die and paddle support bars/no electrical leads for connection to semiconductor die while drawing Fig. 3 clearly illustrates paddle support bars 24, 28 excised close to the paddle 22 with excisions 50 and no electrical leads or no narrow common electrical leads for leads for connection to semiconductor die and paddle support bars/no electrical leads for connection to semiconductor die.

Applicant asserts that the specification describing drawing Fig. 1 through Fig. 3 when taken in conjunction with drawing Fig. 1, proposed drawing Fig. 1A, Fig. 2, and Fig. 3 both complies with the written description requirement and complies with the enablement requirement of 35 U.S.C. § 112.

### **35 U.S.C. § 112 Claim Rejections**

Claims 14 through 19, 25 through 32, 38 and 39 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

In the Office Action, it is asserted that independent claim 14 and independent claim 27 are indefinite because drawing Fig. 1 and drawing Fig. 1A are identical and because the paddle support bars are capable of being used for the intended use as electrical leads for connection to a semiconductor die. Applicant asserts that the embodiments of the invention set forth in independent claim 14 and independent claim 27 are not identical as the claims have different claim terminology used therein. Further, Applicant asserts that independent claim 14 and independent claim 27 clearly comply with the provisions of 35 U.S.C. § 112, second paragraph, when the claims are construed in light of the specification, page 6, lines 7 through 11 and

drawing Fig. 1 and Fig 1A as well as the description of the invention regarding drawing Fig. 2 through Fig. 5. Applicant asserts that the specification clearly states that “Generally, no leads for electrical conduction are provided, although one or more of the paddle support bars 24, 28 may be used as leads in certain specific instances. No narrow ‘leads’ common in lead frames are required in the paddle frame 12, resulting in greater ease of manufacture and increased reliability.” Applicant asserts that such disclosure must be read together, not separately. Applicant asserts that drawing Fig.1 and Fig. 1A cannot be used solely as the support for independent claim 14 and 27 as suggested in the Office Action. Applicant asserts that both the description of the invention in the specification and the drawing figures, such as drawing Fig. 1 through Fig. 3, must be taken together for the description of the invention. Further, Applicant asserts that nowhere in the specification is there any disclosure that the paddle support bars are narrow leads common in lead frames. Applicants further assert that the embodiments of the inventions as set forth in drawing Fig. 1 and proposed drawing Fig. 1A do structurally limit the invention when taken in conjunction with the specification describing those drawing figures as well as drawing figures 2 through 5. Applicant asserts that different embodiments of the inventions are being illustrated in drawing Fig. 1 and proposed drawing Fig. 1A because of the claim limitations directed to “the paddle support bars not used for electrical leads for the semiconductor die” and “at least a plurality of paddle support bars that include one of being used as a lead and not being used as a lead and being attached to a plurality of cross members by the support bars of a paddle frame” as there are no electrical leads illustrated in drawing Fig. 1 used in conjunction with paddle support bar which may be used as leads in certain specific instances whereas proposed drawing Fig. 1A illustrates the instance where when paddle support bars are not used as leads and no narrow common electrical leads for connection to semiconductor die and paddle support bars/no electrical leads for connection to semiconductor die while drawing Fig. 3 clearly illustrates paddle support bars 24, 28 excised close to the paddle 22 with excisions 50 and no electrical leads or no narrow common electrical leads for leads for connection to semiconductor die and paddle support bars/no electrical leads for connection to semiconductor die. Applicant asserts that such claim limitations which were required to be added to drawing Fig. 1 and added to proposed drawing Fig. 1A for the drawings to comply with the provisions of

37 CFR § 1.83(a) clearly structurally limit, structurally differentiate, are not identical claimed inventions to clearly show the claimed inventions of independent claim 14 and independent claim 27 are different. Otherwise, Applicant asserts that there would be no reason for requirement to add such claim language and limitations to the drawing figures to comply with the provisions of 37 CFR § 1.83(a).

Accordingly, Applicant asserts that claims 14 through 19, 25 through 32, 38 and 39 comply with the provisions of 35 U.S.C. § 112, second paragraph, and are allowable.

### CONCLUSION

For the reasons set forth herein, Applicant submits that claims 14 through 39 are clearly allowable over the cited prior art.

Applicant requests the allowance of claims 1 through 11 and 14 through 39 and the case passed for issue.

Respectfully submitted,



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Document in ProLaw

**ATTACHMENT A**  
**Copy of *Ex parte Lyell***

**BEST AVAILABLE COPY**

Manifestly, the claims at issue cover every conceivable monoclonal antibody which achieves the stated result of recited reactivity, whereas appellants specification teaches only one very particular method or means for accomplishing the claimed objective. Hence, we find that the enabling disclosure of the present specification is not commensurate in scope with the breadth of claims 18, 20, 23 and 24.

We now consider the examiner's rejection of appealed claim 21 under §102 over Brown. Although the examiner's stated purpose for maintaining this rejection "is to bolster the 35 USC 112 rejection," the propriety of the rejection must nevertheless be decided in accordance with the principle that to constitute anticipation within the meaning of §102, all material elements of a claim must be present in one prior art source. *In re Marshall*, 577 F.2d 301, 198 USPQ 344 (CCPA 1978); *In re Kalm*, 378 F.2d 959, 154 USPQ 10 (CCPA 1967). However, as pointed out by appellants, whereas claim 21 defines an antibody which "reacts with an antigen found on normal human monocytes and granulocytes," Brown describes the disclosed antibody as being reactive with lymphocytes, without ever mentioning reactivity with monocytes and granulocytes. While the examiner states that Brown's monoclonal antibody binds to all HLA containing cells, including monocytes and granulocytes, it is the examiner's burden to provide evidentiary support for his factual finding. *In re Warner*, 379 F.2d 1011, 154 USPQ 173 (CCPA 1967). The examiner's mere invitation to consult a basic immunology text hardly suffices. Furthermore, not without significance is that claim 21 is presented in product-by-process format. As such, even though the examiner bears a lesser burden of proof in making out a *prima facie* case of anticipation or obviousness, it remains upon the examiner to show that the Brown antibody reasonably appears to be either identical with or only slightly different than the claimed antibody *which is produced by the recited process*. *In re Fessmann*, 489 F.2d 742, 180 USPQ 324 (CCPA 1974); *In re Brown*, 459 F.2d 531, 173 USPQ 685 (CCPA 1972). The examiner is not afforded the option of ignoring the process claim language which defines how the monoclonal antibody is produced. Claim 21 requires that the monoclonal antibody be one that is "produced by a hybridoma formed by fusion of cells from a mouse myeloma line and spleen cells from a mouse previously immunized with human mononuclear cells." Accordingly, it is incumbent upon the examiner to advance evidence that the Brown antibody

appears to be identical to or only slightly different than the claimed monoclonal antibody that is produced by the recited process. However, rather than offering such an argument, the examiner acknowledges that Brown's "antibody is not even remotely related to any monoclonal antibody in the specification or suggested by it." Thus, we do not find that the examiner has met his burden of establishing that the monoclonal antibody of Brown either anticipates or would have rendered obvious the antibody claimed. Hence, we cannot sustain the examiner's rejection under §102.

In conclusion, based on the foregoing, the examiner's rejection of claims 18, 20, 23 and 24 is affirmed, whereas the rejection of claims 19, 21 and 22 is reversed.

Rule 37 CFR 1.136(a) does not apply to the times for taking any subsequent action in connection with this appeal.

**AFFIRMED-IN-PART**

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**U.S. Patent and Trademark Office  
Board of Patent Appeals and Interferences**

Ex parte Lyell

No. 89-0461

Decided August 16, 1990  
Released September 18, 1990

**PATENTS**

**1. Patentability/Validity — Specification  
— Claim adequacy (§115.1109)**

Claim which combines description of automatic transmission workstand with description of method for using it violates second paragraph of 35 USC 112, since purpose of that paragraph is to require patentee to provide others with notice of boundaries of protection provided by patent, since manufacturer or seller, at time of making or selling workstand of structure set forth in claim, would have no indication whether it might later be sued for contributory infringement if workstand is used in accordance with claimed method, and since claim is thus not sufficiently precise that possibility of infringement may be determined with reasonable degree of certainty.

## 2. Patentability/Validity — Subject matter (§115.05)

### Patentability/Validity — Specification — Claim adequacy (§115.1109)

Claim which is intended to embrace both product or machine and process is precluded by language of 35 USC 101, which sets forth statutory classes of invention in alternative only, and is also invalid under 35 USC 112, second paragraph, since claim which purports to be both machine and process is ambiguous and therefore does not particularly point out and distinctly claim subject matter of invention.

## 3. Patentability/Validity — Specification — Claim adequacy (§115.1109)

### Patent construction — Claims — Process (§125.1309)

Single patent may include claims directed to more than one statutory class of invention, but no basis exists for permitting combination of two separate and distinct classes of invention in single claim; this rule is not violated by product-by-process claims, which use process limitations to define product, since such claims are considered to be directed toward product only, and thus encompass only single statutory class of invention, even though they contain process language.

Appeal from final rejection of all claims remaining in application for patent (Robert C. Watson, primary examiner).

Patent application of David L. Lyell, serial no. 845,505, filed March 28, 1986 (automatic transmission tool). From final rejection of all claims remaining in application, applicant appeals. Affirmed.

Jerry C. Lyell, Arlington, Va., for appellant.

Before Serota<sup>1</sup>, chairman, Calvert,<sup>1</sup> vice chairman, McCandlish, Cohen, and Frankfort, examiners-in-chief.

Frankfort, examiner-in-chief.

This is a decision on appeal from the final rejection of claims 2, 4, 7, 8 and 10 through

<sup>1</sup> Serota and Calvert were added post hearing in view of the legal issues raised in this appeal. Compare *In re Bose Corp.*, 772 F.2d 866, 227 USPQ 1 (Fed. Cir. 1985) and see *Ex parte Kumagai*, 9 USPQ2d 1642 (BPAI 1988).

12, which are the only claims remaining in this application.<sup>2</sup>

Appellant's disclosure relates to a transmission repair tool in the form of a workstand and to the method of using same in repairing automatic transmissions. The subject matter on appeal is represented by independent claim 2, which reads as follows:

2. An automatic transmission tool in the form of a workstand and method for using same comprising:

a support means,  
and [sic] internally splined sleeve affixed upright to said support means,

a threaded adjustment bolt threadably engaged through a hole in the bottom of said support means and projecting upward through said support frame into said sleeve,

and further comprising the steps of

1. positioning the output end of an automatic transmission onto said upright sleeve,

2. removing the internal components of said automatic transmission from the casing of said transmission,

3. repairing and replacing said internal components back into said casing, and

4. adjusting said internal components for fit and interference by means of adjusting said upwardly projecting adjustment bolt.

The references of record relied upon by the examiner in the final rejection are:

Morawski et al. (Morawski) 3,701,539 Oct. 31, 1972

Hayden, *Hayden-Trans-Tool Catalog*, "Transmission Tools & Equipment," item No. T-1060-A, p. 17 1986-87.

Claims 2, 4, 7, 8 and 10 through 12 stand rejected under 35 USC 112, second paragraph, as being indefinite. According to the examiner, the claims are ambiguously constructed and indeterminate in scope because they purport to claim both an apparatus and method of using the apparatus in a single claim.

Claims 2, 4, 7, 8 and 10 through 12 stand further rejected under 35 USC 102(b) as being anticipated by Morawski. As indicated

<sup>2</sup> While both the examiner's final rejection (paper No. 4) and the appellant's Notice of Appeal (paper No. 5) make reference to claim 1, we note that these references are in error since claim 1 was cancelled by the amendment filed May 8, 1987 (paper No. 3). Thus, only claims 2, 4, 7, 8 and 10 through 12 remain for our consideration on appeal.



on page 2 of the answer, it is the examiner's position that

Insofar as the claim [sic, claim 2] can be understood it is being treated as an apparatus claim. The various method steps are accordingly, non-substantive having no patentable significance. In Morawski et al (14) is a support means, (10, 46) is a sleeve (48) is a threaded adjustment bolt. Sleeve (10) has a seating surface and (46) contains an internal spline. The intended use of the device has not been accorded any patentable weight. Hence, no patentable significance has been accorded to the transmission casing or shaft recitations.

Claims 2, 4, 7, 8 and 10 through 12 were also finally rejected under 35 USC 102(a) as being anticipated by item No. T-1060-A of the Hayden-Trans-Tool Catalog. However, we note that this rejection has now been withdrawn by the examiner (see paper No. 11) in view of the affidavits under 37 CFR 1.131 which accompanied the reply brief of June 10, 1988. Accordingly, only the rejections of the appealed claims under 35 USC 112, second paragraph and 35 USC 102(b) remain for our consideration on appeal.

In traversing the §112 rejection, appellant contends that the apparatus and method involved in the present application are "inextricably related" (brief, page 4) and that the tool is not useful in a practical and patent sense unless the method is disclosed to the user. Appellant urges that we "find that apparatus and method elements of Appellant's claims are sufficiently distinct to enable one skilled in the art of making or using such tools to practice the invention" (emphasis in original), and to further find that "the apparatus and method claims are proper within one patent" (brief, page 5).

With respect to the Morawski reference applied by the examiner in rejecting the appealed claims under 35 USC 102(b), it is the appellant's position that "[t]he critical feature of the Lyell device, that of holding the output shaft and coaxial transmission components in a spaced relationship with the outer casing, is absent in the Morawski device" (brief, page 6). We refer to pages 4 through 8 of the brief for the full statement of the appellant's position regarding the issues before us on appeal.

#### OPINION

At the outset, we note that the appellant has chosen not to separately argue with any reasonable specificity the patentability of dependent claims 4, 7, 8 and 10 through 12. Accordingly, these claims will stand or fall

with the rejection of independent claim 2. See *In re Nielson*, 816 F.2d 1567, 2 USPQ2d 1525 (Fed. Cir. 1987).

We treat first the rejection of the appealed claims under 35 USC 112, second paragraph. The second paragraph of 35 USC 112 requires a claim to particularly point out and distinctly claim the subject matter which the applicant regards as his invention. In discussing the requirements of the second paragraph of 35 USC 112, the Court of Customs and Patent Appeals in *In re Hammack*, 427 F.2d 1378, 166 USPQ 204 (CCPA 1970), stated at 166 USPQ 208:

Its purpose is to provide those who would endeavor, in future enterprise, to approach the area circumscribed by the claims of a patent, with the adequate notice demanded by due process of law, so that they may more readily and accurately determine the boundaries of protection involved and evaluate the possibility of infringement and dominance.

In this same vein, we would note that the statutory class of invention is important in determining patentability and infringement. As indicated by the court in *In re Kuehl*, 475 F.2d 658, 665, 177 USPQ 250, 255 (CCPA 1973), "[E]ach statutory class of claims must be considered independently on its own merits." See also *Rubber Co. v. Goodyear*, 76 U.S. 788, 796, 19 L.Ed. 566 (1870) (discussing patentability of different classes of invention), and *Merrill v. Yeomans*, 94 U.S. 568, 24 L.Ed. 235 (1877) (indefinite claim held to be to a process of treating oils rather than the product of the process).

[1] Appellant's independent claim 2, in combining two separate statutory classes of invention in a single claim, in our opinion, would raise serious questions for a manufacturer or seller of a tool like that claimed by appellant regarding infringement. Such a manufacturer or seller would have no indication at the time of making or selling a workstand of the structure set forth in appellant's claim 2 whether they might later be sued for contributory infringement because a buyer/user of the workstand later performs the appellant's claimed method of using the workstand. We therefore find that appellant's claim 2 is not sufficiently precise to provide competitors with an accurate determination of the "metes and bounds" of protection involved so that an evaluation of the possibility of infringement may be ascertained with a reasonable degree of certainty, as discussed by the court in *In re Hammack*, *supra*. Accordingly, for this reason alone we would sustain the examiner's rejection of appellant's independent claim 2 and of de-

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under 35 USC 112, second paragraph.

[2] As we noted above, the second paragraph of 35 USC 112 requires a claim to particularly point out and distinctly claim the subject matter which the appellant regards as his invention. However, the "invention" referred to in the second paragraph of 35 USC 112 is also subject to the requirements of 35 USC 101. This section of the statute requires that in order to be patentable the invention must be a "new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof" (emphasis added). In the situation before us on appeal, it is clear that appellant's independent claim 2 is intended to embrace or overlap two different statutory classes of invention set forth in 35 USC 101. In our view, a claim of this type is precluded by the express language of 35 USC 101 which is drafted so as to set forth the statutory classes of invention in the alternative only. Further, we must agree with the examiner that a single claim which purports to be both a product or machine and a process is ambiguous and is properly rejected under 35 USC 112, second paragraph, for failing to particularly point out and distinctly claim the invention. While the examiner has only set forth the rejection of the appealed claims as being under 35 USC 112, second paragraph, we note that he has relied upon 35 USC 101 in supporting his position that appellant's claims on appeal are ambiguously drafted and indeterminate in scope. See page 3 of the examiner's answer. Thus, we consider that whether the appropriate statutory ground of rejection is 35 USC 101 and/or 35 USC 112, second paragraph, the appellant has been clearly apprised of the basis for the rejection and has had a fair opportunity to respond to the basic thrust of the rejection. Compare, *In re Kronig*, 539 F.2d 1300, 190 USPQ 425 (CCPA 1976) and *In re Rasmussen*, 650 F.2d 1212, 211 USPQ 323 (CCPA 1981).

[3] Turning to the appellant's arguments, we first note that the statement on page 5 of the brief concerning "making or using" the appellant's claimed invention would seem to be more appropriately directed at a rejection under 35 USC 112, first paragraph, based upon lack of enablement. However, no such rejection is before us on appeal. Next, we note that while it has long been settled that a single patent may include claims directed to more than one statutory class of invention (e.g., a claim to an apparatus and a separate claim to a method of using or producing the apparatus), we find no basis for permitting a combination of two separate and distinct

statutory classes of invention in a single claim. Indeed, the cases cited by the appellant in his brief do not suggest otherwise, as evidenced by the quote (brief, page 5) chosen from *Expanded Metal Co. v. Bradford*, 214 U.S. 366, 385 (1909): "A process and an apparatus by which it is performed are distinct things."

Patents are authorized by statute and Congress has indicated that inventions may be patentable only if they fall within one of the statutory classes of subject matter specified in 35 USC 101, e.g., "process, machine, manufacture or composition of matter," see *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 483, 181 USPQ 673, 679 (1974). Historically, these categories of invention have been regarded as "four great and distinct classes of invention." *Ex parte Blythe*, 1885 C.D. 82, 86. The first statutory class, process, is defined in 35 USC 100(b) and refers to "arts", while the last three classes, machine, manufacture and composition of matter, refer to physical things or products. "An applicant who claims a product is not required to state whether it is a machine, manufacture, or composition of matter" and products may fall into alternative classes, e.g., a machine or manufacture. 1 Chisum, *Patents*, §1.02 (1989). However, the classes of machine, manufacture or composition of matter "all differ fundamentally in nature from a process." *Nestle-Le Mur Co. v. Eugene, Ltd.*, 55 F.2d 854, 858, 12 USPQ 335, 339 (6th Cir. 1932). We note that eminent legal writers, such as Robinson, have held similar views. Robinson's "Treatise on the Law of Patents" (1890), at section 511 (page 118), states:

... every claim must define the invention it includes in such a manner as to indicate the class of inventions to which it belongs. While the claim need not state in terms whether the invention claimed is an art [process], a machine, a manufacture, a composition of matter, a design, or an improvement, it must be apparent to which of these great classes the invention does pertain.

See also Deller, *Patent Claims*, Chap. VIII and Chap. IX (2d ed, 1971): As stated in Deller, §133:

A claim is single and is either for a process or product. If the claim were divisible, one part would be for a process and the other for a manufacture and it might be in danger of being held void for ambiguity. An applicant for a patent may separately claim a patentable process and a patentable product, but cannot properly cover them both in one claim. They are proper subjects of separate and distinct claims.

(*Merrill v. 1 Bann & Ard*, 55 and 94 US 568 and 24 L ed 235; *Goodyear v. Rubber Co.*, 2 Cliff 371 and 76 US 788 and 19 L ed 566; *Durand v. Schulze*, 61 F819).

The dichotomy between process and product classes of invention has also been recognized and noted in the following discussion in *Ex Parte Forsyth*, 151 USPQ 55, 56 (Bd. of Appeals 1965):

A claim such as those before us cannot be both method and apparatus. It must be clear from its wording that it is drawn to one or the other of these mutually exclusive statutory classes of invention. A method or process, as indicated above, is an act or a series of acts and from the standpoint of patentability must distinguish over the prior art in terms of steps, whereas a claim drawn to apparatus must distinguish in terms of structure. This is so elemental as not to require citation of authorities. The Patent Act of 1952 did not abolish the then existing different classes of invention. It reaffirmed the same by Section 101 of USC 35.

We however do recognize that certain types of claims which appear to be "hybrid" are permitted in U.S. patent practice. In particular, we refer to product-by-process claims. While this type of claim format may facially appear to cross the line between statutory classes of invention, we note that such is not the case. A product-by-process claim merely uses one statutory class of invention (i.e., process limitations) to define or fingerprint another statutory class (i.e., the product) which is not readily susceptible to definition solely by structure or physical characteristics. As the court indicated in *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985) citing *In re Brown*, 459 F.2d 531, 173 USPQ 685, 688 (CCPA 1972) and *In re Pilkington*, 411 F.2d 1345, 162 USPQ 145 (CCPA 1969):

Product-by-process claims are not specifically discussed in the patent statute. The practice and governing law have developed in response to the need to enable an applicant to claim an otherwise patentable product that resists definition by other than the process by which it is made. For this reason, even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. (citations omitted)

The patentability of a product does not depend on its method of production. (citation omitted) If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior prod-

uct was made by a different process. (citations omitted).

Thus, we would distinguish appellant's claim 2 from a product-by-process claim because in a typical product-by-process claim the process referred to is the process of making a product, as opposed to the process of using a product or apparatus, as is set forth in appellant's claim 2 on appeal. We would further note that we consider appellant's claim 2 to be clearly distinguishable from product-by-process claims, since, as noted in the quotation above, such claims have long been considered to be solely "product" claims, and, in contrast to appellant's claim 2, would thus encompass only a single statutory class of invention set out in 35 USC 101.

When it comes to a final consideration of appellant's claim 2, we see no reason or legal basis in the patent law to make an exception to claim practice which has existed for over 100 years. In view of the long-standing practice of requiring a product and a process to be separately claimed, we believe that Congress should speak before the Patent and Trademark Office allows a claim which covers a combination of a product and a process.

In light of the foregoing, it is our conclusion that appellant's claim 2, which purports to be both an apparatus and a process in a single claim, is ambiguous and properly rejected under 35 USC 112, second paragraph. As we indicated earlier, dependent claims 4, 7, 8 and 10 through 12 fall with independent claim 2. See *In re Nielson*, *supra*.

With regard to the examiner's rejection of appealed claims 2, 4, 7, 8 and 10 through 12 under 35 USC 102(b) as anticipated by Morawski, it is our view that since the appealed claims are indefinite and indeterminate in scope for the reasons stated *supra*, it is not possible to apply the prior art to these claims in deciding patentability without disregarding portions of the express wording of the claims and thus resorting to speculation and conjecture as to the particular invention defined therein. We therefore will not sustain the examiner's rejection of the appealed claims under 35 USC 102(b). See *In re Wilson*, 424 F.2d 1382, 165 USPQ 494 (CCPA 1970) and *In re Steele*, 305 F.2d 859, 134 USPQ 292 (CCPA 1962).

In summary, the examiner's decision rejecting the appealed claims under 35 USC 112, second paragraph, is affirmed, while the rejection of these claims under 35 USC 102(b) is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR 1.136(a). See the

final rule notice, 54 F.R. 29548 (July 13, 1989), 1105 O.G. 5 (August 1, 1989).

**AFFIRMED.**

### Court of Appeals, Federal Circuit

Beatrice Foods Co. v. New England Printing  
and Lithographing Co.

No. 90-1340

Decided January 23, 1991

### REMEDIES

#### 1. Monetary — Damages — Patents — Increased damages (§510.0507.07)

Federal district court erred by awarding treble damages pursuant to 35 USC 284 in order to "adequately compensate" plaintiff for defendant's infringements, since court did not adequately explain basis for its award, since enhanced damages may be awarded only as penalty for infringer's culpability, such as willfulness or bad faith, and cannot be awarded to rectify perceived inadequacy in actual damages, and since defendant was found not to have willfully infringed patents or to have prolonged litigation in bad faith.

#### 2. Monetary — Damages — Patents — Increased damages (§510.0507.07)

#### Monetary — Damages — Prejudgment interest (§510.0511)

Federal district court erred by awarding prejudgment interest on entire damage award, including enhanced damages awarded pursuant to 35 USC 284, since purpose of prejudgment interest is to make patentee whole by compensating for delay in obtaining royalties which patentee would have received sooner if no infringement had occurred, and since prejudgment interest thus can only be applied to primary or actual damage portion of award, and not to enhanced portion, which is punitive rather than compensatory.

Appeal from the U.S. District Court for the District of Connecticut, Murphy, J.

Action by Beatrice Foods Co. (Webcraft Technologies Inc., real party in interest) against New England Printing and Litho-

graphing Co., for patent infringement. From award of enhanced damages and prejudgment interest to plaintiff on remand, defendant appeals. Affirmed in part, vacated in part, and remanded.

Prior decision: 14 USPQ2d 1020.

James B. Muskal, of Leydig, Voit & Mayer (Richard M. Johnson, of counsel), Chicago, Ill., for plaintiff-appellee.

Thomas L. Shriner, Jr., of Foley & Lardner, Milwaukee, Wis. (Richard M. Esenberg and James L. Huston, Milwaukee, with him on brief; Theodore W. Anderson, Michael O. Warnecke, Deborah Schavey Ruff, and John M. Augustyn, of Neuman, Williams, Anderson & Olson, Chicago, of counsel), for defendant-appellant.

Before Friedman, senior circuit judge, and Markey and Archer, circuit judges.

Friedman, J.

The principal question in this patent infringement case, here on appeal from the United States District Court for the District of Connecticut, is whether the district court improperly trebled the damages on the theory that the enhanced award was necessary to compensate adequately the patentee for the infringement. An additional issue is whether the court erred in awarding prejudgment interest on the enhanced portion of the award. We hold that the district court erred in both of these rulings.

### I

A. The appellee, Beatrice Foods Co. (hereinafter Webcraft, formerly a division of Beatrice and now the independent company Webcraft Technologies, Inc., and the real party in interest), filed this suit in 1980 charging the appellant, New England Printing and Lithographing Company (New England), with infringing three of Webcraft's patents. After trial, the district judge rejected New England's challenges to the validity of the patents and its laches and estoppel defenses, found that New England had infringed the patents, and entered judgment against New England "in money damages to compensate [Webcraft] for the infringement ... but in no event less than a reasonable royalty together with interest, costs, and a reasonable attorney fee. . . ." *Beatrice Foods Co. v. New England Printing and Lithographing Co.*, 224 USPQ 982, 992, 1984 WL 1493 (D. Conn. 1984). In an unpub-